

University of Glasgow
PROFESSIONAL EXAMINATIONS
FOR DEGREES IN
MEDICINE AND SURGERY

1909-10



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University of Glasgow.


FIRST PROFESSIONAL EXAMINATION
AND FIRST B.Sc.

BOTANY.

1. Give a general account of how nitrogen enters into the composition of the plant-body, and of the sources from which it is derived.
2. Describe in detail the structure either of a Pea, or of a grain of Wheat, explaining, in either case, the function of the several parts.
3. Give a detailed account, with drawings, of the structure of the root of a Dicotyledon, especially illustrating the transverse section (*a*) of a young, and (*b*) of an old root.
4. Give as complete a description as you can of the construction of some Angiospermic flower (naming the plant to which your description refers): explain the functions and chief features of structure of the several parts.
5. Give an account of the life-history of a mould, and of its mode of nourishment.

Only FOUR questions to be attempted for First Professional Examination.

All FIVE to be attempted for First B.Sc.



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21st March, 1910.

{1st Prof.—Two hours.
{1st B.Sc. and M.A.—Three hours.

University of Glasgow.

ZOOLOGY.

Candidates are reminded to bring their dissecting instruments to the Oral Examination.

Candidates in MEDICINE are only expected to attempt FOUR (not more) questions in SECTION A. Candidates in SCIENCE and in ARTS are expected to attempt FOUR questions in SECTION A and also TWO in SECTION B.

Candidates should illustrate their answers by diagrammatic sketches wherever possible.

A.

1. Write a general account of the allantois.
2. Compare and contrast the skeletal structures which protect the surface of the body in a Dogfish and an Arthropod.
3. Give a list of the cranial nerves and describe their distribution in one of the lower Vertebrates.
4. Describe the structure of *Alcyonium*.
5. What is meant by mesoderm (mesoblast)? In what groups of animals does it occur? How does the mesoderm originate, and what parts of the body are derived from it?
6. What is meant by a gamete? Describe the mode of production of the gametes in *Monocystis Obelia* and the Earthworm, and explain in each case where the union of the gametes takes place.

B.

7. Write a short general account of the torsion of the visceral hump which is characteristic of certain Molluscs.
8. Describe the water-vascular system of a Starfish, and explain its function.
9. What is meant by the term "radiate" as applied to eyes? How do such eyes function?
10. Explain fully the meaning of the following terms: Post-reduction, idiochromosome, syndesis, spermatogonium.

University of Glasgow.

FIRST PROFESSIONAL EXAMINATION FOR
DEGREES IN MEDICINE.

PHYSICS.

NOTE.—*Candidates are requested to attempt FOUR, AND NOT MORE THAN FOUR, of the following questions.*

1. Define *Work*, *Kinetic Energy*, *Potential Energy*.

A bullet of mass 40 lbs. leaves the muzzle of a cannon, 3 feet long, with a horizontal velocity of 1500 feet per second. Find the kinetic energy of the bullet, and the average force exerted by the powder on the bullet.

2. On what does (1) the pitch, (2) the quality of a musical note depend?

Describe an experimental method of determining the pitch of a note.

How does the pitch of the note given out by a plucked string depend on (1) the stretching force, (2) the length, (3) the mass per unit length of the string?

3. Define *Specific Heat*, and describe the method of determining specific heat called the "method of mixtures." A pound of silver at 176°C . is immersed in a bath containing 25 pounds of mercury at 50°C ., and the resulting temperature is found to be 58°C . Taking the specific heat of mercury as 0.033, find the specific heat of silver.

4. Explain the deposition of dew. Why is dew not readily formed on a cloudy night?

Explain why a thermometer having its bulb covered with a cloth dipping into water reads lower than a similar thermometer with its bulb dry. What deductions can be inferred from the difference between the readings as to the hygrometric state of the atmosphere? What would it mean if the two thermometers indicated the same temperature?

[OVER.]

5. An object—say an arrow—is placed on the principal axis of a convex lens. Construct a careful diagram showing the formation of the image.

Give a brief account of the eye as an optical instrument, illustrating your description by means of a sketch.

What are the ordinary defects of the eye of a person whose sight is not normal, and how can they be remedied by optical appliances?

6. What do you understand by *Electric Current*, *Electromotive Force*, and *Electric Resistance*? How are these related in the circuit of a battery?

Twenty cells of two units resistance each are joined (1) in a single series, (2) as a double series of 10 cells, and the terminals in each case are joined by a wire of 10 units resistance. Compare the currents in the two cases.

Friday, 18th March, 1910.

10 a.m. to 12.30 p.m.

University of Glasgow.

FINAL EXAMINATION FOR M.B.

PRACTICE OF MEDICINE.

1. Detail and explain the chief pressure symptoms in thoracic aneurysm, and formulate the treatment for such a case.
2. What are your views as to the pathology of diabetes: what are the cardinal symptoms of this disease? Sketch *in detail* the dietary you would prescribe.
3. What facts can you adduce in support of the statement that lobar pneumonia is a *constitutional* and not a *local* disease? State on what grounds you would rely for a prognosis in this affection.
4. A workman, aged 35, of robust frame and hitherto quite healthy, was lifting a heavy weight when he suddenly experienced pain of short duration between the shoulder blades, followed in a few minutes by complete paraplegia of the lower limbs, paralysis of the bladder and rectum, loss of sense of temperature and pain from the level of the nipples downwards, tactile sensation, however, remaining almost unimpaired. The deep reflexes in the legs, at first abolished, soon became exaggerated and bed-sores speedily developed over the sacrum.

To what lesion would you think the symptoms were due, and what reasons would you offer for your opinion? What prognosis would you give in the case, and how would you treat it?

19th March, 1910.

Time—Two hours.

University of Glasgow.

FINAL PROFESSIONAL EXAMINATION.

OBSTETRICS AND GYNAECOLOGY.

1. Enumerate the causes of delay in the second stage of labour, and give the indications for the use of forceps.
2. Give the diagnosis, mechanism, and treatment of facial presentations.
3. Describe the treatment of post partum haemorrhage, and state what precautions should be taken in a case where a previous labour had been attended by this complication.
4. What conditions may give rise to a foetid vaginal discharge? How would you determine its source?
5. Enumerate the affections of the vulva, and give the causes and treatment of Pruritis Vulvae.

University of Glasgow.

M.B. EXAMINATION.

CHEMISTRY.

(Answer FOUR questions, one of which at least must be chosen from 4 and 5.)

1. What do you understand by the terms "direct oxidation," "indirect oxidation," and "reduction"? Give three instances illustrating such reactions.
2. How may the vitreous and the amorphous varieties of phosphorus be prepared? Point out their differences. What is known regarding the molecule of phosphorus at the boiling point?
3. Describe accurately how you would experimentally demonstrate the volume composition of any *one* of the following gases: (a) hydrogen chloride, (b) ammonia, (c) hydrogen sulphide.
4. How would you determine quantitatively the carbon and the hydrogen in an organic substance?
5. State briefly what you understand by the term fermentation. How may "absolute" alcohol be prepared?
6. 53 grammes of a metal when acted on by hydrochloric acid evolved 514 c.c. of hydrogen gas, the gas being measured at 15° Cent. and 780 m.m. Calculate the equivalent of the metal and the atomic weight, the specific heat being 0.2499.

22nd March, 1910.

University of Glasgow

SECOND PROFESSIONAL EXAMINATION.

1. Describe the course and relations of the ureters (including their pelves) in the female, and give a sketch of their development.
2. Describe the attachments and relations of the ligaments of the Hip Joint.
3. Describe the course and distribution of the maxillary or second division of the Trifacial nerve.
4. Describe the third Ventricle of the Brain, defining its position and boundaries, and naming the structures connected with it.

Tuesday, 22nd March, 1910.

Time—Two hours.

University of Glasgow.

DEGREES OF M.B. AND CH.B. AND
FINAL B.SC.—FIRST PAPER.

PHYSIOLOGY.

(ALL the questions are to be answered.)

1. How is carbon dioxide produced and got rid of? What conditions affect the amount expelled from the human body?
2. What is the use of the arterial blood pressure? Describe carefully two experiments to show (*a*) that it is dependent on the action of the heart, (*b*) that it is influenced by contraction of the blood-vessels.
3. What are the essentials of a diet on which health may be maintained. State what you consider the most suitable quantities of the three proximate principles for the diet of a labouring man, and give your reasons for selecting these amounts.
4. Make a diagram to show how parallel rays of light are focussed upon the retina in the normal eye. Indicate the changes which take place in the eye when a near object is looked at, and explain how these are brought about.

24th and 25th March, 1910.

University of Glasgow.

DEGREES OF M.B. AND CH.B.

PRACTICAL PHYSIOLOGY.

A.—HISTOLOGY.

Time—One hour.

1. Carry out the procedure indicated on the card at the place allotted to you.
2. Identify the specimens beside the card, and answer the questions on the card beside them.

B.—CHEMISTRY.

Time—One hour.

Carry out the chemical investigations indicated on the card at the place allotted to you.

C.—GENERAL.

Time—One hour.

Prepare and demonstrate to the Examiners the experiment or experiments allotted to you.

Monday, 21st March, 1910.

9 to 11 a.m.

University of Glasgow.

SECOND PROFESSIONAL EXAMINATION.

MATERIA MEDICA AND THERAPEUTICS.

PROFESSOR WILD AND PROFESSOR STOCKMAN.

1. Enumerate the official preparations of *Sulphur*, mention their doses, and state the purposes for which they are employed.
2. What is the pharmacological action of *Strychnine*? What official preparations contain it? Give their doses.
3. What kinds of cases derive benefit from *Spa Treatment*? Give a very short general account of mineral waters and their mode of action
4. Classify *Diuretic drugs*, and indicate how they act.
5. State in detail how you would treat a case of syphilis by *Inunction*?

Tuesday, 22nd March, 1910.

12 noon to 2 p.m.

University of Glasgow.

THIRD PROFESSIONAL EXAMINATION.

PATHOLOGY.

1. Give an account of the pathology of dropsy, stating the clinical conditions in which it occurs, and discussing the factors concerned in its production.
2. Describe the simple gastric ulcer (peptic ulcer) and discuss its causation.
3. Describe the changes in the lung in acute croupous pneumonia and the micro-organism which causes it.
4. Give an account of the condition of the kidney (macroscopic and microscopic) in chronic interstitial nephritis.
5. What is agglutination, and under what conditions does it occur? Discuss its significance and describe the application of the test in the diagnosis of infections.

(Not more than FOUR questions to be answered.)

23rd March, 1910.

Time allowed—Two hours.

University of Glasgow.

EXAMINATION FOR DEGREES IN MEDICINE.

MEDICAL JURISPRUDENCE.

(N.B.—FOUR questions only to be answered, which must include No. 5.)

1. Discuss the evidential value of human bones and teeth in the determination of identity.
2. Assuming that you have to administer a general anaesthetic to an adult on the ensuing day :
 - (a) What directions would you give for the due preparation of the patient ?
 - (b) Write an explanatory list of the articles you would provide as anaesthetist.
 - (c) State the precautions you would observe before and during the administration.
3. In wounds caused by firearms, what appearances would aid you in estimating the distance from which the weapon was fired, (a) if a pistol, and (b) if a fowling-piece (that is a shot-gun) ?
4. Describe the appearances of linen stained by (a) gonorrhoeal pus, and (b) semen. State fully how you would demonstrate the exact nature of each stain respectively.
5. Give briefly the physical and chemical properties of Potassium Cyanide, and mention the lethal dose. Describe the symptoms and treatment in poisoning by this substance. In a fatal case what evidences may be found on post-mortem examination ? By what tests may the poison be detected from the bodily organs ?

Friday, 18th March, 1910.

2 to 4 p.m.

University of Glasgow.

FINAL EXAMINATION FOR M.B.

SURGERY.

(FOUR questions to be answered, one of which must be No. 4 or 5.)

1. Describe the various forms of Ganglia at the wrist, and give the treatment of each.
2. Give the diagnosis and treatment of renal calculus.
3. Give the anatomy, symptoms and treatment of dislocation of lower jaw.
4. Describe the histological processes involved in repair of a simple fracture through the diaphysis.
5. What are the phenomena connected with the separation of a slough?

